

REMARKS/ARGUMENTS

Claims 1-4, 6, 9 and 11-13 are pending in the application. Claims 1-4, 6, 9 and 11-13 were rejected. Applicants, by this paper, amend claims 1, 2, 6, and 9. No new matter is added by amendment. Applicants respectfully request reconsideration and allowance of all pending claims.

Rejections Under 35 U.S.C. §101

The Examiner has rejected claims 1-4 and 11 as being unpatentable as not falling within one of the four statutory categories of invention. Applicants have amended the Claim 1 to recite that the step of assigning the symbols is performed in a modulator, and thus is tied to hardware.

Likewise, Applicants have amended Claim 2 to recite that the steps of assigning the symbol to a plurality of carriers is done in a modulator of a transmitter. Accordingly, each of the steps that comprise the step of assigning are recited as being done in the modulator.

Claims 3-4 and 11 are dependent from Claim 2.

Accordingly, Applicants respectfully traverse the Examiner's rejection of Claims 1-4 and 11 as being unpatentable as not falling within one of the four statutory categories of invention.

Rejections Under 35 U.S.C. §112

Claims 2-4, 11 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 2, the Examiner contends that the phrase "capable of" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. Applicants have amended Claim 2 to remove the offending language "capable of" from Claim 2. Accordingly, Applicants traverse the Examiner's rejection of Claims 2-4 and 11.

Rejections Under 35 U.S.C. §102

Claims 2-4 and 6 were rejected under 35 U.S.C. §102 as being anticipated by Badri et al. (US 7,173,979) (hereafter “Badri”). Applicants contend that Badri neither teaches nor suggests the invention recited in these claims, which have once again been amended to clarify the distinction between Badri and the claimed invention. Furthermore, for the reasons provided below in detail, it would not be reasonable to conclude that one of ordinary skill in the art with knowledge of Badri would come to the invention recited in these claims. Accordingly, Applicants traverse the Examiner’s rejection of Claims 1 and 6 as being anticipated by Badri and further contend that these claims as amended are not obvious to those of ordinary skill in the art over Badri, either taken alone or together with any one or more of the other references cited by the Examiner.

In particular, Applicants have amended Claim 2 to recite “wherein the assignment of symbols to carriers produces a non-uniform repetition pattern that distributes the data bits across carriers in a pseudorandom pattern that insures non-periodicity in the location of carriers modulated by the same data bit”. In sharp contrast, Badri (at col. 10, line 39-51) discloses that:

In this case the following carrier raster can be used. If the first transmission symbol has been transmitted via the first carrier, the second transmission symbol could be transmitted via the 32nd carrier, the third transmission symbol via the 128th carrier and the fourth transmission symbol via the 256th carrier. Other frequency rasters are, however, also conceivable. Preferably transmission symbols are transmitted which are all based on the same information symbols, so that they are uniformly distributed over the frequency raster, since then there is the greatest possibility of finding at least one channel which has not been damped to an exceptionally great extent through destructive interference. (Emphasis added).

While the disclosure does not indicate that this is the only way in which the frequency raster can be implemented (and in fact states that other frequency rasters are also conceivable), there is neither disclosure nor suggestion of the particular raster that is

recited in the present claims. In fact, because Badri indicates that the distribution should be "uniform" the only suggestion for other rasters is for other uniform distributions. The particular pseudorandom distribution recited in the claims as amended provides an unexpected value that is counter intuitive to the teaching of Badri. It is for this reason that Applicants believe that the invention as currently recited in Claim 1 and the other independent claims as amended, is not anticipated by Badri, nor made obvious by Badri, either taken alone or in combination.

Claims 3 and 4 depend from Claim 2. Accordingly, Applicants traverse the Examiner's rejection of Claims 2-4 for the reasons stated above with respect to the claims as amended.

In addition, Claim 6 has been amended to add a similar limitation. That is, Claim 6 has been amended to recite:

...redundantly assigning the same portion of the one symbol to at least a second unique plurality of carriers in a repetition pattern that distributes the at least one data bit across carriers in a pseudorandom pattern, wherein the frequency separation of the first plurality of carriers and the second plurality of carriers is non-uniformly distributed to insure non-periodicity in the location of carriers modulated by the one data bit over a set of available frequencies upon which the first and second plurality of carriers are transmitted...

Rejections under 35 USC §103

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Badri et., al (US 7,173,979 B1) in view of Korobkov, et al (US 7,206,350 B2). Applicants have amended Claim 1 to add the limitation of modulating the redundant symbols onto a plurality of carriers to create a non-uniform repetition pattern that distributes the data bits across carriers in a pseudorandom pattern that insures non-periodicity in the location of carriers modulated by the same data bit. As noted above with regard to the §102 rejections made against Claim 2, none of the references including Badri and Korobkov teach or suggest using a pseudorandom pattern to distribute the data bits across the carriers. Accordingly, Applicants respectfully traverse the Examiner's rejection of Claim 1.

The Examiner has also rejected Claims 11-12 under 35 U.S.C. 103(a) as being unpatentable over Badri et al (US 7,173,979 B1) in view of Tager et al (US 6,751,262 B1). Claim 11 depends from Claim 2 and Claim 12 depends from Claim 6. Accordingly, since Tager neither teaches nor suggests the missing element of distributing the bits over the carriers in a pseudorandom pattern, Applicants respectfully traverse the Examiner's rejections for the same reasons provided above with respect to Claims 2 and 6.

CONCLUSION

Applicants believe that all claims pending in the application are allowable. Applicants therefore respectfully request that a timely Notice of Allowance be issued in this case. Alternatively, Applicants contend that the application now in better condition for appeal and respectfully request that the Examiner enter this amendment.

This is a response to the Final Office Action mailed on February 3, 2009, and as such, is submitted timely.

If there are any other fees due in connection with the filing of the response, please charge the fees to our Deposit Account No. 504613. If a fee is required for an extension of time under 37 CFR 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned.

Respectfully submitted,

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